

**AMENDMENTS TO THE CLAIMS**

Please amend claims 1, 3-7 and 9-11.

Please add claims 12-16.

1. (currently amended) A method of manufacturing a semiconductor device, comprising the steps of:

(a) ~~providing a semiconductor substrate in which a floating gate electrode is formed;~~

(a) forming a tunnel oxide film on the semiconductor substrate;

(b) sequentially forming a first polysilicon film and a pad nitride film on the tunnel oxide film;

(c) etching the pad nitride film, the first polysilicon film, the tunnel oxide film and the semiconductor substrate with a patterning process to form a trench in the semiconductor substrate;

(d) depositing an oxide film on the entire structure including the trench and then planarizing the oxide film with the pad nitride film until the pad nitride film is exposed;

(e) removing the pad nitride film and then depositing a second polysilicon film on the entire structure;

(f) patterning the second polysilicon film to form the floating gate electrode;

~~(b)~~(g) nitrifying the a top surface of the floating gate electrode;

~~(e)~~(h) forming a dielectric film along the step of the results on the entire structure including the floating gate; and

~~(d)~~(i) forming a material film for a control gate electrode on the dielectric film, wherein the step of nitrifying the tope of the floating gate electrode and the step of forming the dielectric film are ~~implemented~~ performed in-situ within the same chamber.

2. (original) The method as claimed in claim 1, wherein the dielectric film has an ONO structure on which a first oxide film, a nitride film and a second oxide film are sequentially stacked.

3. (currently amended) The method as claimed in claim 1, wherein the steps (b g) and (e h) that are performed in-situ ~~implemented~~ within the same chamber and comprises the steps of:

(g)(1) introducing a  $\text{N}_2\text{O}$  gas flow of 100 ~ 10000 sccm at a temperature of 800 ~ 950°C to nitrify the top of the floating gate electrode;

(h)(1) introducing  $\text{N}_2\text{O}$  gas and DCS ( $\text{SiH}_2\text{Cl}_2$   $\text{SiH}_2\text{Cl}_2$ ) gas under at a pressure of 0.1 ~ 3torr and at a temperature of 790 ~ 830°C to form a first oxide film ~~along the step~~ on the entire structure;

(h)(2) introducing DCS gas and  $\text{NH}_3$  gas under at a pressure of 0.1 ~ 3torr and at a temperature of 650 ~ 800°C to form a nitride film on the first oxide film; and

(h)(3) introducing  $\text{N}_2\text{O}$  gas and DCS( $\text{SiH}_2\text{Cl}_2$   $\text{SiH}_2\text{Cl}_2$ ) gas under at a pressure of 0.1 ~ 3torr and at a temperature of 790 ~ 830°C to form a second oxide film on the nitride film.

4. (currently amended) The method as claimed in claim 2 3, wherein the a ratio of DCS ( $\text{SiH}_2\text{Cl}_2$   $\text{SiH}_2\text{Cl}_2$ ) gas and  $\text{N}_2\text{O}$  gas is in the range of 1:5 ~ 1:10.

5. (currently amended) ~~The method as claimed in claim 1, wherein formation of the floating gate electrode is accomplished by the steps of:~~

~~sequentially forming a tunnel oxide film, a first polysilicon film and a pad nitride film on the semiconductor substrate;~~

~~etching a part of the pad nitride film, the first polysilicon film, the tunnel oxide film and the semiconductor substrate through a patterning process to form a trench within the semiconductor substrate;~~

~~depositing an oxide film on the entire structure including the trench and then making smooth the oxide film so that the pad nitride film is exposed;~~

~~etching the pad nitride film and then depositing a second polysilicon film on the entire structure; and~~

~~patterning the second polysilicon film to form the floating gate electrode~~

The method as claimed in claim 1, further comprising, between the steps (c)(a) and (d)(b), the step of implementing an annealing process using  $\text{N}_2$  at a temperature of 900 ~ 910°C for 20 ~ 30 minutes.

6. (currently amended) The method as claimed in claim 1, further comprising, between the steps (e)(g) and (d)(h), ~~the~~ a step of implementing a steam anneal process of a wet oxidization mode at a temperature of 750 ~ 800°C so that the thickness of the dielectric film ~~becomes~~ is in the range of 150 ~ 300Å.

7. (currently amended) ~~A method of manufacturing a semiconductor device, comprising the steps of~~ The method as claimed in claim 1, wherein the steps (g) and (h) that are performed in-situ and within the same chamber and comprise:

(a)(g1) loading a semiconductor substrate in which a floating gate electrode is formed into a deposition chamber;

(b)(g2) changing the temperature within the deposition chamber to a first deposition temperature;

(e)(g3) nitrifying the top surface of the floating gate electrode at the first deposition temperature;

(d)(h1) changing the temperature within the deposition chamber to a second deposition temperature range;

(e)(h2) forming a dielectric film ~~along the step in~~ on the entire structure at the second deposition temperature range ~~to form a dielectric film~~; and

(f)(h3) unloading the semiconductor substrate from the deposition chamber.

8. (original) The method as claimed in claim 7, wherein the first deposition temperature is 800 ~ 950°C and the second deposition temperature range is 650 ~ 830°C

9. (currently amended) The method as claimed in claim 7, wherein the step (c)(g3) comprises introducing N<sub>2</sub>O gas into the deposition chamber to nitrify the top surface of the floating gate electrode.

10. (currently amended) The method as claimed in claim 7, wherein the step (e)(h2) comprises the steps of:

introducing  $\text{N}_2\text{O}$  gas and DCS ( ~~$\text{SiH}_2\text{CL}_2$~~   $\text{SiH}_2\text{Cl}_2$ ) gas into the deposition chamber to form ~~the~~ a first oxide film;

introducing  $\text{NH}_3$  gas and DCS ( ~~$\text{SiH}_2\text{CL}_2$~~   $\text{SiH}_2\text{Cl}_2$ ) gas into the deposition chamber to form ~~the~~ a nitride film on the first oxide film; and

introducing  $\text{N}_2\text{O}$  gas and DCS ( ~~$\text{SiH}_2\text{CL}_2$~~   $\text{SiH}_2\text{Cl}_2$ ) gas into the deposition chamber to form ~~the~~ a second oxide film on the nitride film.

11. (currently amended) The method as claimed in claim 10, wherein the ratio of DCS ( $\text{SiH}_2\text{CL}_2$   $\text{SiH}_2\text{Cl}_2$ ) gas and  $\text{N}_2\text{O}$  gas is in the range of 1:5.about.1:10.

12. (new) A method of manufacturing a semiconductor device, comprising the steps of:

(a) forming a tunnel oxide film on the semiconductor substrate;

(b) implementing an annealing process so that a defect density at an interface between the tunnel oxide film and the semiconductor device is minimized;

(c) forming a floating gate electrode on the tunnel oxide film;

(d) nitrifying a top surface of the floating gate electrode;

(e) forming a dielectric film on the entire structure including the floating gate electrode; and

(f) forming a material film for a control gate electrode on the dielectric film, wherein the nitrifying of the top surface of the floating gate electrode and the forming of the dielectric film are performed in-situ and within the same chamber.

13. (new) The method as claimed in claim 12, wherein the annealing process is performed in a  $\text{N}_2$  atmosphere at a temperature of  $900 \sim 910^\circ\text{C}$  for 20 ~ 30 minutes.

14. (new) The method as claimed in claim 12, wherein the dielectric film has an ONO structure on which a first oxide film, a nitride film and a second oxide film are sequentially stacked.

15. (new) The method as claimed in claim 12, wherein the steps (d) and (e) that are performed in-situ within the same chamber and comprises:

introducing a  $N_2O$  gas flow of 100 ~ 10000 sccm at a temperature of 800 ~ 950°C to nitrify the top of the floating gate electrode;

introducing  $N_2O$  gas and DCS ( $SiH_2Cl_2$ ) gas at a pressure of 0.1 ~ 3torr and at a temperature of 790 ~ 830°C to form a first oxide film on the entire structure including the floating gate;

introducing DCS gas and  $NH_3$  gas at a pressure of 0.1 ~ 3torr and at a temperature of 650 ~ 800°C to form a nitride film on the first oxide film; and

introducing  $N_2O$  gas and DCS ( $SiH_2Cl_2$ ) gas at a pressure of 0.1 ~ 3torr and at a temperature of 790 ~ 830°C to form a second oxide film on the nitride film.

16. (new) The method as claimed in claim 15, wherein the ratio of DCS ( $SiH_2Cl_2$ ) gas and  $N_2O$  gas is in the range of 1:5 ~ 1:10.